



Underutilization of High-Intensity Statin Therapy After Hospitalization for Coronary Heart Disease

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ABSTRACT

BACKGROUND National guidelines recommend use of high-intensity statins after hospitalization for coronary heart disease (CHD) events.

OBJECTIVES This study sought to estimate the proportion of Medicare beneficiaries filling prescriptions for high-intensity statins after hospital discharge for a CHD event and to analyze whether statin intensity before hospitalization is associated with statin intensity after discharge.

METHODS We conducted a retrospective cohort study using a 5% random sample of Medicare beneficiaries between 65 and 74 years old. Beneficiaries were included in the analysis if they filled a statin prescription after a CHD event (myocardial infarction or coronary revascularization) in 2007, 2008, or 2009. High-intensity statins included atorvastatin 40 to 80 mg, rosuvastatin 20 to 40 mg, and simvastatin 80 mg.

RESULTS Among 8,762 Medicare beneficiaries filling a statin prescription after a CHD event, 27% of first post-discharge fills were for a high-intensity statin. The percent filling a high-intensity statin post-discharge was 23.1%, 9.4%, and 80.7%, for beneficiaries not taking statins pre-hospitalization, taking low/moderate-intensity statins, and taking high-intensity statins before their CHD event, respectively. Compared with beneficiaries not on statin therapy pre-hospitalization, multivariable adjusted risk ratios for filling a high-intensity statin were 4.01 (3.58–4.49) and 0.45 (0.40–0.52) for participants taking high-intensity and low/moderate-intensity statins before their CHD event, respectively. Only 11.5% of beneficiaries whose first post-discharge statin fill was for a low/moderate-intensity statin filled a high-intensity statin within 365 days of discharge.

CONCLUSIONS The majority of Medicare beneficiaries do not fill high-intensity statins after hospitalization for CHD. (J Am Coll Cardiol 2015;65:270–7) © 2015 by the American College of Cardiology Foundation.

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Among patients discharged after a hospitalization for coronary heart disease (CHD) or acute coronary syndrome (ACS), high-intensity atorvastatin therapy has been shown in randomized controlled trials to be more effective than either placebo or low/moderate-intensity therapy with pravastatin or atorvastatin in reducing recurrent cardiovascular disease events (1-3). Thus, the recent

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American College of Cardiology/American Heart Association (ACC/AHA) Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults recommends initiation of high-intensity statin therapy in CHD patients (4). This is particularly relevant for ACS patients in whom initiation of this therapy is recommended before hospital discharge (5).

Data from clinical registries suggest that more than 80% of patients are prescribed statins after a myocardial infarction (MI) or coronary revascularization (6,7). However, few prior studies have reported the percentage of patients who filled their prescriptions for high-intensity statins after CHD events. In the PREMIER (Prospective Registry Evaluating outcomes after Myocardial Infarctions: Events and Recovery) and TRIUMPH (Translational Research Investigating Underlying Disparities in Acute Myocardial Infarction Patients' Health status) registries, only one-third of patients filled a high-intensity statin prescription after hospitalization for MI (8). Factors associated with being discharged on a high-intensity statin were not reported, and at 365 days after discharge, the only variable associated with being on intensive statin therapy was the prescribed statin intensity at discharge.

One challenge that may contribute to underuse of high-intensity statins after CHD events remains a suboptimal hospital discharge process. This process should include medication reconciliation, yet in prior studies, many patients have not understood changes to the medications they were being administered pre-hospitalization or the reasons for these changes (9-13). Since most patients having a CHD event are on statins before the event, it is possible that many such patients may simply return to their previous schedule of medications.

The role of prior statins as determinants of post-discharge high-intensity statin use has not been well studied. The goal of the current study was to determine the percent of Medicare beneficiaries filling high-intensity statins as their first statin prescription fill, and within 365 days, after a CHD hospitalization. Further, we evaluated factors, including intensity of

statin therapy before hospitalization, associated with filling prescriptions for high- versus low/moderate-intensity statin therapy after hospital discharge.

METHODS

We conducted a retrospective cohort study of Medicare beneficiaries using the 2006 to 2010 national 5% random sample from the Centers for Medicare and Medicaid Services (CMS). Medicare is a U.S. federal benefit program that provides health insurance to individuals 65 years of age and older, on disability, or who have end-stage renal disease (ESRD), through either individual fee-for-service claims or contracts with health care organizations. Specific data used for the current analyses include claims from Medicare fee-for-service Parts A (inpatient), B (outpatient), and D (prescription drug). Medicare claims and assessment data are linked by beneficiary across the continuum of care. The CMS and the institutional review board at the University of Alabama at Birmingham approved the study.

Medicare beneficiaries who experienced a CHD event, including hospitalization for acute MI or coronary revascularization (coronary artery bypass graft [CABG] surgery or percutaneous coronary intervention [PCI]) in 2007, 2008, or 2009 formed the base population for our analyses. We used International Classification of Diseases-Ninth Edition-Clinical Modification (ICD-9-CM) and current procedure terminology (CPT) codes to identify these events. Acute MI was defined using ICD-9-CM code 410.xx (except 410.x2, which indicates a subsequent episode of care) in any discharge diagnosis position on an inpatient file record. CABG was identified using CPT codes 33510 to 33536 or ICD-9-CM procedure codes 36.10 to 36.19, and PCI was identified using CPT codes 92980 to 92996 or ICD-9-CM procedure codes 00.66, 36.01 to 36.09.

To be eligible for this analysis, beneficiaries having CHD events needed to meet the following criteria: 1) 65 years of age or older 365 days before hospital admission for their CHD event (the "look-back" period); 2) hospitalization duration <30 days; 3) continuous "full coverage" for Medicare during the look-back period; 4) 90-day survival after hospital discharge with continuous full Medicare coverage; and 5) live in the United States and have valid birth/death dates. Because high-intensity statins are not universally recommended for patients ≥ 75 years of age with a CHD event, primary analyses also required beneficiaries to be <75 years of age. Full coverage was defined

ABBREVIATIONS AND ACRONYMS

ACS	= acute coronary syndrome(s)
CABG	= coronary artery bypass graft
CHD	= coronary heart disease
CMS	= Centers for Medicare and Medicaid Services
CPT	= current procedure terminology
ESRD	= end-stage renal disease
ICD-9-CM	= International Classification of Diseases-Ninth Edition-Clinical Modification
LDL-C	= low-density lipoprotein cholesterol
MI	= myocardial infarction
PCI	= percutaneous coronary intervention

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